

REMARKS

Claims 1-28 are pending in the application. Claim 16, 26, and 27 have been cancelled from the application. Therefore, claims 1-15, 17-25, and 28 are at issue.

Claims 1 and 28 have been amended to recite that the flexible absorbent sheet has a density of about 0.65 to about 0.85 g/cc. Support for the amendment to claims 1 and 28 can be found in the specification at page 22, lines 9 and 10 and page 42, lines 26-29. This amendment will be discussed more fully in connection with the rejection of the claims under 35 U.S.C. §103. Claim 11 has been amended to improve the form of the claim. Claim 14 has been amended to provide antecedent basis for "the optional ingredient".

Claim 28 stands rejected under 35 U.S.C. §112, first paragraph, for failing to comply with the written description requirement. The examiner contends that the term "wherein said sheet of free of fibers" was not reasonably conveyed to persons skilled in the art at the time the application was filed. Applicants traverse this rejection. Support for this phrase was fully set forth in Amendment "B," filed July 7, 2008.

The examiner contends that the specification only contains support for "free of cellulosic fibers or other fluff materials" at page 20, lines 35-36. However, the examiner has failed to consider the specification as a whole and for everything it teaches.

The recitation of "free of fibers" in claim 28 can be found throughout the specification. For example, claim 1 recites that the flexible sheet can contain 100% of (a) and (b), thereby excluding fibers. Also see specification, page 1, lines 4-5 ("an absorbent sheet material comprising... 100%, by weight, superabsorbent polymer and plasticizer"). This disclosure is repeated at page 4, line 36 through page 5, line 1 and page 5, lines 10-13. Also see specification, page 8, lines 7-10 ("The present absorbent sheets exhibit unexpected flexibility and structural integrity for sheets containing about 60% to 100%, by weight, SAP and plasticizer components, and 0% to about 40%, by weight, optional nonabsorbent fibers or filters, unconventional SAPs, and other optional ingredients"), and page 19, lines 9-14 ("An absorbent sheet material of the present invention also can contain 0% to about 40%, and preferably 0% to about 30%, by weight of optional ingredients, in total. To achieve the full advantage of the present invention, the sheet material contains 0% to about 20%, by weight,

of optional ingredients, in total. An individual optional ingredient is envisioned as being present from 0% to about 25%, by weight of the sheet material.") (emphasis added).

The recitation in claim 28 of "free of fibers" is specifically supported further in Examples 1 and 2, at pages 23 and 24 of the specification, each of which is free of fibers. Also see the specification at page 34, lines 3-14, and page 37, lines 17-25, each disclosing the preparation of an absorbent sheet *without* fibers. These portions of the specification are attached hereto as Exhibit A. The pages in Exhibit A were brought to the attention of the examiner in Amendment "B," but apparently were not considered. Accordingly, these portions of the specification are provided for the convenience of the examiner, with underlining to demonstrate that the absorbent sheets are *free* of fibers. These examples and disclosure show that the inventors had possession of the subject matter of claim 28 at the time of filing the application.

In addition to the above, disclosure taken from the specification, at page 44, lines 21-24 the specification also states:

"Overall, the sheet materials of the present invention have excellent structural integrity for a nonwoven fabric comprising only an SAP component and a plasticizer component. In particular, the sheet material has sufficient flexibility and structural integrity to be rolled for shipment, storage, and subsequent use." (Emphasis added);

at page 21, lines 8-13 states:

"An absorbent sheet material of the present invention is prepared by admixing the SAP component, plasticizer component, and any optional ingredients, then subjecting the resulting mixture to thermal pressing for a sufficient time at a sufficient temperature and pressure to form an absorbent sheet without any substantial surface crosslinking reaction occurring between the SAP component and plasticizer component." (Emphasis added); and

at page 21, lines 29-33 states:

"More particularly, an absorbent sheet material of the present invention is prepared by thermal pressing the SAP and

plasticizer components at a temperature of about 30°C to about 80°C, and preferably about 35°C to about 70°C. To achieve the full advantage of the present invention, the SAP-plasticizer component mixture is pressed at about 40°C to about 60°C."

Also see page 21, lines 17-22 for a general procedure of manufacturing the absorbent sheets using an SAP component and plasticizer applied to a platen.

The examiner also is directed to pages 8-16 of the specification, which discloses the SAP component; page 16-19 of the specification, which discloses the plasticizer; and pages 19-20 which discloses *optional* ingredients. Included in the definition of "optional ingredients" is nonwoven fibers (page 19, line 25 and page 20, lines 15-34). As *optional* ingredients, applicants clearly teach that the fibers can be included in absorbent sheet or *excluded* from the absorbent sheet, i.e., that the applicants had possession of the presently claimed invention at the time of filing the application. Excerpts provided above from the specification specifically state that the absorbent sheet can contain 0% of optional ingredients (page 19, lines 9-14).

It is submitted therefore(a) that claim 28 fully conforms to 35 U.S.C. §112, first paragraph, because the specification provides a proper written description and is enabling, and (b) that this amendment does not introduce new matter into the application. The above excerpts from the specification and Exhibit A show individual multicomponent SAPs particles, with a plasticizing component, are formed into a sheet in the absence of fibers.

Applicants not only demonstrated that they possessed the invention of claim 28 at the time of filing the application, thereby complying with the written description requirement, applicants also have enabled persons skilled in the art to make and use the invention. In particular, applicants provide examples free of fibers, *and* applicants specifically teach how to make the flexible absorbent sheets in the absence of fibers at Examples 1 and 2 and the specification, page 34, lines 3-14, and page 37, lines 17-25. Note that the flexible sheets of Examples 1 and 2 and the specification, page 34, lines 3-4 and page 37, lines 17-25 also are free of cellulose fibers, i.e., are fluffless. Therefore, applicants not only provided examples of the presently claimed invention, but also specifically provided

instructions to persons skilled in the art as to how to make a presently-claimed fluffless, flexible absorbent sheet.

The examiner may be concerned that the specification does not specifically state the term "free of fibers," but it is settled law that a claim term does not have to be recited *in haec verba* in the specification. To comply with 35 U.S.C. §112, first paragraph, all that has to be demonstrated is whether applicants' disclosure has conveyed sufficient information to those skilled in the art that the applicants invented the claimed subject matter. Applicants have met this burden throughout the present specification, e.g., in Examples 1-2, page 34, lines 3-14, page 37, lines 17-25 of the specification, and all the other excerpts from the specification provided above. As stated in MPEP §2163, "[I]t is now well accepted that a satisfactory description may be in the claims *or in any other portion* of the originally filed specification" (emphasis added). Support for a claim limitation can be express, implicit, or inherent. In the present case, support for claim 28 is express.

Applicants have provided sufficient information in the disclosure to inform those skilled in the art that applicants invented the absorbent sheet of claim 28. Only flexible sheets free of fibers, as claimed, are provided as examples. The MPEP goes on to state that the claimed invention can be described in words, structures, figures, diagrams, and formulas. Possession of the invention also may be shown by a reduction to practice, including testing of the claimed invention, which applicants have done in Examples 1 and 2 and in the tests set forth at pages 29-44. Also see the sheets prepared at page 34, lines 3-14, and at page 37, lines 17-25, for example, wherein no fibers are present.

A contention that the term "free of fibers" must be recited in the disclosure in order for the specification to contain a basis for the term is not sustainable. This reasoning has been found clearly erroneous in *In re Wright*, 9 U.S.P.Q.2d 1649, 1651 (Fed. Cir. 1989), wherein the court stated:

"...in *In re Smith*, 481 F.2d 910, 914, 178 U.S.P.Q. 620, 624 (CCPA 1973. As our predecessor court said in that case:

The specification as originally filed must convey clearly to those skilled in the art the information that the applicant has invented the specific subject matter later claimed. *In re*

Ruschig, supra, 54 CCPA at 1559, 379 F.2d at 996, 154 USPQ at 123. When the original specification accomplishes that, regardless of how it accomplishes it, the essential goal of the description is realized.

In deciding the issue, the specification as a whole must be considered.

As also pointed out in *Smith* and as admitted by the board, "the claimed subject matter need not be described in haec verba in the specification in order for the specification to satisfy the description requirement." The fact, therefore, that the exact words here in question, "not permanently fixed", are not in the specification is not important. From the wording of the examiner's rejection it would seem that he did not know that; at least he wanted to be shown an "unequivocal teaching" that the microcapsules are not permanently fixed."...

...All of this convinces us that it is of the essence of the original disclosure that the microcapsules are "not permanently fixed" to their various supports. The examiner was therefore wrong in his underlying premise that the limitation added to the claim by amendment contained "new matter".

The specification does unequivocally teach the absence of permanently fixed microcapsules. The §112 rejection was clearly erroneous and cannot stand. There is clear compliance with the description requirement."

As recently stated by the CAFC:

"The written description requirement of §112, ¶ 1, is straightforward: 'The specification shall contain a written description of the invention...' To satisfy this requirement, the specification must describe the invention in sufficient detail so 'that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.' *Lockward v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997); see also *LizardTech, Inc. v. Earth REs. Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed. Cir. 2005); *Eiselstein v. Frank*, 52 F.3d 1035, 1039 (Fed. Cir. 1995).

The requirement "serves a teaching function as a '*quid pro quo*' in which the public is given 'meaningful disclosure in exchange for being excluded from practicing the invention for a limited period of time.'" *Univ. of Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916, 922 (Fed. Cir. 2004) (quoting *Enzo Biochem, Inc. v. GenProbe Inc.*, 323 F.3d 956, 970 (Fed. Cir. 2002)).³

³ The requirement is rigorous, but not exhaustive: "[I]t is unnecessary to spell out every detail of the invention in the specification; only enough must be included to convince a person of skill in the art that the inventor possessed the invention." *LizardTech*, 424 F.3d at 1345. Applicants have met the legal standard required to satisfy 35 U.S.C. §112, first paragraph."

Therefore, considering the present specification as a whole, particularly in light of the information disclosed throughout the specification and in the examples, applicants have adequately informed those skilled in the art that the flexible sheet of claim 28 is free of fibers. See MPEP, § 2163, II, A, 2, wherein *the entire specification, including specific embodiments* should be considered. It is submitted, therefore, that the rejection of claim 28 under 35 U.S.C. §112, first paragraph, should be withdrawn.

Claim 14 stands rejected under 35 U.S.C. §112, second paragraph, for failing to provide antecedent basis for the term "the optional ingredient." Claim 14 has been amended to depend from claim 13, and accordingly, the rejection of claim 14 has been overcome. Therefore, it is submitted that the rejection of claim 14 under 35 U.S.C. §112, second paragraph, should be withdrawn.

Claims 1-8, 11, and 13-27 stand rejected under 35 U.S.C. §103 as being unpatentable over Melius et al. U.S. Patent No. 6,323,388 ('388) in view of Beihoffer et al. U.S. Patent No. 6,072,101 ('101). Claim 9, 10, and 12 stand rejected under 35 U.S.C. §103 as being unpatentable over the '388 patent in view of the '101 patent and further in view of Brueggmann et al. U.S. Patent No. 6,051,317 ('317). The examiner contends that, because the '388 patent discloses an absorbent sheet comprising a standard superabsorbent polymer (SAP) and a plasticizing component, and because the '101 patent discloses multicomponent SAPs, it therefore would have been obvious to substitute a multicomponent SAP of the '101 patent for the SAP of the '388 patent in the preparation of a flexible sheet. In view of the amendments to claim 1, it is submitted that these rejections are in error and should be withdrawn.

A determination that a claimed invention would have been obvious under §103(a) is a legal conclusion involving the four factual inquiries set forth in *Graham v. John*

Deere Co., 383 U.S. 1, 17-18 (1966). To reach a proper determination under 35 U.S.C. §103(a), the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicants' disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search, and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the *facts* gleaned from the prior art. MPEP §2142.

As recently articulated by the Court of Appeals for the Federal Circuit in *Ortho-McNeil Pharmaceutical Inc. v. Mylan Laboratories Inc.*, 86 USPQ 2d, 1196, 1201-2 (Fed. Cir. 2008):

"As this court has explained, however, a flexible TSM test remains the primary guarantee against a non-statutory hindsight analysis such as occurred in this case. *In re Translogic Tech., Inc.* 504 F.3d 1249, 1257 [84 USPQ 2d 1929] (Fed. Cir. 2007) ("[A]s the Supreme Court suggests, a flexible approach to the TSM test prevents hindsight and focuses on evidence before the time of invention.)."

Furthermore, to establish a *prima facie* case of obviousness, the examiner must satisfy three requirements. First, as the U.S. Supreme Court recently held in *KSR International Co. v. Teleflex Inc. et al.*, 127 S.Ct. 1727 (2007), "a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. ...it [may] be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was *an apparent reason* to combine the known elements in the fashion claimed by the patent at issue. ...it can be important to *identify a reason that would have prompted a person of ordinary skill in the relevant field to combine*

the elements in the way the claimed new invention does... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." (emphasis added, *KSR, supra*). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991). Lastly, the prior art references must teach or suggest all the limitations of the claims. *In re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970).

Once the Patent Office properly sets forth a prima facie case of obviousness, the burden shifts to the applicants to come forward with evidence and/or argument supporting patentability. *See In re Glaug*, 283 F.3d 1335, 1338 (Fed. Cir. 2002). Rebuttal evidence is merely a showing of facts supporting the opposite conclusion." *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). Evidence rebutting a prima facie case of obviousness can include: (a) "evidence of unexpected results," *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348 1369 (Fed. Cir. 2007); (b) "evidence that the prior art teaches away from the claimed invention in any material respect," *In re Peterson*, 315 F.3d 1325, 1331 (Fed. Cir. 2003); and, (c) evidence of secondary considerations, such as commercial success or long-felt yet unmet needs, *WMS Gaming, Inc. v. International Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999). The Patent Office must always consider such evidence supporting patentability. *See, e.g., In re Sullivan*, 498 F.3d 1345, 1352-53 (Fed. Cir. 2007) (reversing a Patent Office decision of obviousness because the Patent Office failed to consider the applicants' evidence rebutting a prima facie case of obviousness). If the Patent Office determines that such evidence is not compelling or is insufficient, then the Patent Office should specifically set forth the facts and reasoning supporting that determination. MPEP §2145 (8th Ed., Rev. 6, Sept. 2007).

The '388 patent discloses absorbent pads prepared using a type of papermaking process in the presence of a superabsorbent polymer (SAP). This process requires the presence of a high amount of fibers. The '388 patent discloses the production of standard diaper cores that exhibit all of the disadvantages set forth in the specification, for example, at page 2, line 2 through page 3, line 7, and page 4, lines 20-28.

In the presently-claimed invention, SAP particles are compressed with an amount of plasticizer to directly produce a sheet material that is sufficiently flexible and has sufficient structural integrity to be continuously manufactured and formed into rolls (specification, page 4, lines 9-13). Prior attempts to form such a sheet have failed (e.g., specification, page 4, lines 14-19 and 39-35). Applicants have found, however, that this is possible with the multicomponent SAP components recited in the claims. Coherence and structural integrity of the present sheets are based on direct particle-particle contact (i.e., the process described at page 22, lines 12-18 of the specification and in Example 1), as opposed to a mechanical entanglement of SAP particles in a fiber web as in the pads of the '388 patent. An important feature of the present invention is that the SAP component can be formed into a "roll-good" sheet merely by mixing the SAP component with a plasticizer and pressing, something that is neither disclosed nor rendered obvious by the cited art.

The independent claims now recite a flexible absorbent sheet having a density of about 0.65 to about 0.85 g/cc. In contrast, the absorbent sheets of the '388 patent have a density of 0.02 g/cc to 0.6 g/cc ('388 patent, column 13, lines 54-65), with the examples of the '388 patent having a density of up to 0.23 g/cc ('388 patent, Table 5, Examples 1H and 1.) The '388 patent specifically states that "retention portion 48 can have a drug density which is not more than a maximum of about 0.6 g/cm³."

In particular, the '388 patent discloses an absorbent article wherein the "retention portion (48) includes a wet-formed mixture of *fibers* and superabsorbent material" ('388 patent, abstract, emphasis added). Retention portion (48) of the '388 patent is equivalent to the presently claimed flexible absorbent sheet. Also see, '388 patent, column 3, lines 49-51, stating that the retention portion (48) is a material of "a mixture of *fibers* and superabsorbent material" (emphasis added). Also see '388 patent, column 8, lines 52-55; column 9, line 1 through column 10, line 4; and column 11, lines 1-4 and lines 43-46.

The '388 patent therefore teaches that the fibers are an essential ingredient of retention portion (48). The reference teaches that the superabsorbent material accounts for at least about 0.5% up to about 80%, by weight ('388 patent, column 11, line 43 through column 12, line 74) of retention portion (48). Therefore, a retention portion (48) of the '388 patent contains from about 20% to about 99.5%, by weight, of fibers. It is the presence of the

fibers that reduce density of the absorbent article of the '388 particle compared to the present absorbent sheets.

In direct contrast to the teachings of the '388 patent, a presently claimed flexible absorbent sheet is *free* of particles. Applicants recitation in independent claim 1 of the phrase "consisting essentially of," and in claim 28 of "free of fibers," eliminates fibers considered essential by the '388 patent from the flexible sheet.

In the present case, the presence of fibers does materially effect the basic and novel characteristics of the flexible sheet, i.e., fibers reduce the *density* and the thinness of the flexible sheet. Density of the absorbent sheet is directly related to the thinness of the sheet because a dense sheet contains more of an SAP required for fluid absorption, and the sheet therefore can be thinner.

A major goal in absorbent articles, such as diapers, is thinness (see specification, page 2, lines 3-17). To achieve substantial thinness, a fluff and fibers must be excluded from the absorbent portion of the diaper. However, achieving an absorbent sheet having a high percentage of SAP (to achieve thinness) has not been achieved until the present invention (see specification, page 2, line 18 through page 5, line 6.) Eliminating the low density fluff and fibers from the absorbent sheet also results in an *increased density, as claimed* and in contrast to the low density sheets of the '388 patent.

A present flexible sheet is free of fibers, can be formed as a continuous sheet, has good absorbency properties, is dense, *and* provides a thin absorbent sheet. The inclusion of fibers would, at least, increase the thickness of the absorbent and reduce the density, and accordingly would materially affect the basic and novel characteristics of a claimed flexible absorbent sheet.

In addition, applicants have shown the improvements achieved by excluding fibers from the flexible sheet, which would not have been obvious in view of the teachings of the '388 patent. The '388 patent clearly teaches away from excluding fibers from retention portion (48), and discourages persons skilled in the art from excluding fibers. In fact, the '388 patent teaches that incorporating fibers is essential to the disclosed invention.

The '101 patent fails to overcome the deficiencies of the '388 patent. In supporting the present rejection of the claims, the examiner contends that it would have been obvious to substitute the multicomponent SAP particles of the secondary '101 patent for the conventional SAP particles of the primary '388 patent, and thereby arrive at the presently claimed invention.

The '101 patent is directed to a single particle containing both an acidic resin and a basic resin. As disclosed in the '101 patent, neither the acidic resin nor the basic resin alone performs as an SAP. However, when combined together in the same particle, the resulting multicomponent particle is an excellent SAP. The '101 patent also has disclosure relating to a mixture of acidic resin particles and basic resin particles. Therefore, the most that can be achieved by an arguable combination of the '388 patent and the '101 patent is to substitute the multicomponent SAP particles of the '101 patent for the standard SAP particles of the '388 patent.

The present claims recite a flexible absorbent sheet that *excludes* fibers. The combination of the '388 and '101 patents therefore does not render the present claims obvious. The '388 patent fails to teach or suggest an absorbent sheet free of fibers, but to the contrary explicitly teaches that the fibers are an essential ingredient. The '101 patent is totally silent with respect to the preparation of absorbent sheets, but rather discloses the formation of particles having microdomains of an acidic resin and microdomains of a basic resin in the same particle and discloses a mixture of acidic resin particles and basic resin particles. No absorbent sheet is disclosed, let alone an absorbent sheet that excludes fibers.

More importantly, the '388 patent specifically *requires* fibers to achieve the benefits of the invention. Accordingly, persons skilled in the art would have had no incentive from a combination of the '388 and '101 patents to prepare a flexible absorbent sheet that is free of fibers with any reasonable expectation of providing a useful flexible absorbent sheet.

With respect to the examiner's comments regarding claim 11, the term "internally plasticized" does not relate to a process step, but identifies the relationship between the SAP and the plasticizer. In one embodiment, the SAP component and plasticizer are separate and individual components that are admixed, e.g., see claim 12.

An internally plasticized SAP component is an alternative embodiment disclosed at page 12, lines 1-7 of the specification, stating:

"In an alternative embodiment, the acidic resin and/or basic resin is internally plasticized prior to the thermal pressing step. In internal plasticizing, the acidic or basic resin is reacted with a compound having a moiety capable of reacting with a carboxyl or amino group of the SAP (e.g., a glycidyl group) and a residue capable as acting as a plasticizer compound (i.e., a hydroxyl group). For example, the acidic or basic resin can be internally plasticized by reaction with a monoglycidyl ether of ethylene glycol or a similar compound."

In this embodiment, the plasticizer is covalently bonded to the SAP component.

Accordingly, the recitation of an "internally-plasticized SAP component" is *not* a process step, but is an alternative embodiment of the invention, similar to the SAP component being an embodiment of claim 2 or an embodiment of claim 3. The examiner's contentions with respect to claim 11 therefore are erroneous.

In view of the above, it is submitted that claims 1-8, 11, 13-15, and 17-25 would not have been obvious over a combination of the '388 and '101 patents. In particular, the examiner has failed to establish a *prima facie* case of obviousness because there is no apparent reason for a person skilled in the art to combine the references in a fashion presently claimed *and* the references, alone or in combination, do not teach or suggest all of the features of the claims. The '388 patent specifically discloses that fibers are essential ingredients of the invention, and fails to provide any teaching that fibers can be omitted. The '388 patent, therefore, discourages eliminating fibers from the absorbent sheet. The '101 patent discloses multicomponent SAP particles and mixtures of acidic and basic SAP particles, but is silent with respect to absorbent sheets. Therefore, for all the reasons set forth above, the present rejection of claims 1-8, 11, 13-15, and 17-25 as being obvious over the '388 and '101 patent should be withdrawn.

With respect to claims 9, 10, and 12, the '317 patent does not overcome the deficiencies of the '388 and '101 patents discussed above. Claims 9, 10, and 12 are preferred embodiments of the present invention. Applicants do not rely solely upon the features of

claims 9, 10, and 12 for patentability, but rely upon all the features of both claims 9, 10, and 12 *and* independent claim 1 from which they depend. Accordingly, it is submitted that claims 9, 10, and 12 are patentable over a combination of the '388, '101, and '317 patents for the same reasons claim 1 is patentable over a combination of the '388 and '101 patents.

In the examiner's response to applicants' prior arguments, the examiner construes the term "consisting essentially of" as "comprising" because there is no clear indication of what the basic and novel characteristics of the invention actually are. This construction is incorrect.

The claims now recite a density of the absorbent sheet that would be adversely affected by the presence of fibers. The claimed density correlates to the thinness of the sheet. The very thin sheet of high density also has good absorbency and structural integrity, which allows for a very thin diaper that, prior to the present invention, was not possible.

The fact the specification recites that the absorbent sheet can include optional nonwoven fibers is not relevant to the presently-claimed invention. The *original* claims recited up to 100%, by weight, of SAP component and plasticizer thereby excluding fibers. This is the embodiment now being claimed, and the presence of fibers would affect the basic and novel characteristics of the claimed invention, i.e., the thinness of the sheet, as recited in the claims as the density of the sheet. The retention portion (48) of the '388 patent cannot achieve the claimed density, as evidenced by the density disclosure of a sheet of the '388 patent. It is the claims that are to be examined, and it is not incumbent on applicants to claim every embodiment in the specification. The present claims are limited to one of the embodiments disclosed in the specification, and the other, unclaimed embodiment should not be the focus of the Office Action.

Claim 28 stands rejected under 35 U.S.C. §103 as being obvious over Ahmed et al. U.S. Patent No. 6,456,877 ('877) in view of the '101 patent. The basis of the rejection is an assertion that the '877 patent teaches a fluffless absorbent sheet comprising an SAP component and plasticizer, and that it would have been obvious to utilize the SAP component disclosed in the '101 patent in the fluffless sheet of the '877 patent. Applicants traverse this rejection.

The '877 patent discloses a composition containing a blend of a thermoplastic component and at least one SAP. The '877 patent, at column 4, lines 62-65, defines "thermoplastic component" as a composition that is reversibly capable of softening or fusing when heated and *hardening* again when cooled. The '877 patent further discloses, at column 5, lines 55-63, that the blend can further comprise tackifiers and plastifiers to *modify the adhesive properties* of the compositions, not to soften the thermoplastic-containing composition (i.e., not to render the composition flexible).

A composition of the '877 patent (that contains a thermoplastic component) therefore cannot be a flexible sheet as presently claimed. In particular, claim 28 has been amended to recite, in the body of the claim rather than the preamble, that the sheet is flexible, thereby more positively reciting this important feature of the claimed absorbent sheets.

The passages in '877 patent cited, and relied upon, by the examiner do not and cannot relate to flexible sheets. In particular, a composition of the '877 patent can be applied to a substrate to form a coating or film layer of particles on a substrate, but there is *no* disclosure and that this composition forms self-standing sheets of sufficient structural integrity for practical applications. If cast into a sheet, a composition of the '877 patent would be hard and inflexible, and accordingly not useful in a diaper or similar article, because the thermoplastic component is rigid unless molten at high temperature.

The examiner also is directed to the '877 patent, at column 8, lines 48-50 stating that in the absence of a thermoplastic polymer, a plasticizer alone "could not contribute to a continuous phase to disperse the SAP within". This statement explicitly teaches that a blend of a plasticizer and an SAP would not form the flexible sheet, and persons skilled in the art would be discouraged from forming a flexible sheet solely from a plasticizer and SAP. Surprisingly, applicants have found that a flexible sheet is formed, as claimed, by the present SAP component and a plasticizer. The '877 also is silent with respect to density.

The '877 patent not only teaches that an SAP and plasticizer cannot form a useful flexible sheet, the reference also teaches that the thermoplastic component is essential to achieve the benefits of the invention. In particular, the '877 patent, at column 18, lines 28-

36, states that the thermoplastic component overcomes the "gel blocking" (i.e., low permeability) phenomena demonstrated by SAP particles by separating SAP particles from one another and allowing each SAP particle to absorb an aqueous liquid and swell independently. The '877 patent therefore teaches the benefits of separating SAP particles from one another, and *discourages* the use of SAP particles without a separating buffer between the SAP particles (e.g., fluff of the '388 patent and the thermoplastic component of the '877 patent).

In contrast, the claimed absorbent sheet is free of a fluff and is flexible (cannot contain a thermoplastic component), and unexpectedly exhibits excellent fluid absorbency. The present specification at page 25, lines 15-28 discusses gel blocking, and the property tested to determine gel blocking and permeability, i.e., gel bed permeability (GBP). The present absorbent sheets exhibit high GBP values of about 1000 to about 6000. This excellent fluid permeability is attributed in part to the claimed SAP component. The excellent fluid permeability also is unexpected and unpredicted in view of the explicit teachings of the '877 patent.

In addition, the '877 patent, at column 13, lines 33 through column 14, line 10, discloses, how the composition is prepared. This disclosure fails to teach sheets of sufficient flexibility and integrity to form rolls, but rather teaches pelletizing, molding, extruding, etc. of a molten blend for subsequent remelting and application. The formation of sheets is not disclosed because sheets cannot be formed from the blend disclosed in the '877 patent.

The '101 patent does not overcome the deficiencies of the '877 patent. The most that a combination of the '877 and '101 patents teaches is substituting the multicomponent SAPs of the '101 patent for the conventional SAP of the '877 patent. The end result is still a *rigid, inflexible* composition because of the thermoplastic component.

For the reasons set forth above, it is submitted that claim 28 would not have been obvious over a combination of the '877 and '101 patents. In particular, the combination of references fails to teach each claimed feature. Neither reference is directed to a flexible, absorbent sheet as claimed. The composition of the '877 patent is inflexible because of the presence of a thermoplastic component, and the '101 patent is totally silent with respect to

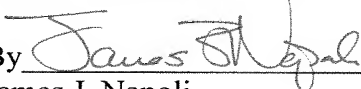
forming a sheet from a multicomponent SAP. In addition, the absorption results demonstrated by the present invention are both unexpected and unpredictable in view of the teachings of the '877 patent with respect to separating SAP particles from one another in order to overcome the problems of gel blocking. Accordingly, a *prima facie* case of obviousness with respect to claim 28 cannot be maintained.

It is submitted that the claims are in proper form and scope for entry and allowance. An early and favorable action on the merits is respectfully requested.

Should the examiner wish to discuss the foregoing, or any matter of form in an effort to advance this application toward allowance, the examiner is urged to telephone the undersigned at the indicated number.

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Respectfully submitted,

By 

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